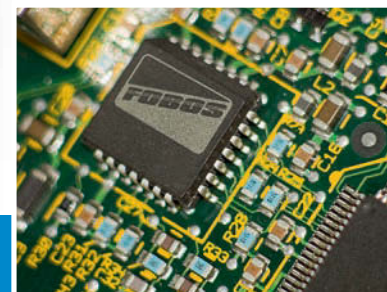


FOBOS

FOBOS
GAS EQUIPMENT

CATALOGUE



2011

www.fobos-bg.com

intro

www.fobos-bg.com

History

The company was established in 1992 as a sole trader which basic activity was to repair taxi fiscal devices and to install car alarm systems.

In 1993 it started producing car alarm systems and protective systems.

In 1997 the company entered a new field – sale and maintenance of fiscal equipment. Then, in 1999, the range of company activities was broadened and a new multimedia unit was established to sell and rent out video and audio equipment and parts.

In 2001 the company began to sell and install automobile gas injection systems and later on, in 2004, it launched its own production of electronics for gas injection systems.

Due to the growing market demand, in 2005 the company started to develop and integrate within the production process its own brand of a gas injection system which injects the gas directly into the cylinders.



Nowadays,
Fobos Auto Ltd
has the following main activities:

- Production of automobile gas injection systems
- Production of electronic modules for gas injection system control
- Production of mechanical modules and components used in gas injection systems
- Import and export, wholesale trade and retail of gas injection systems and their components
- Installation and maintenance of LPG and CNG gas injection systems
- Full service
- Automobile audio systems
- Security systems for automobiles and office premises

Electronics



Gas/petrol switch over relay time



Automatic gas/petrol Change-over switch



Automatic gas/petrol switch over with a level indicator



Automatic gas/petrol switch over with a level indicator



Change-over switch for vacuum reducer compatible for carburetors cars



Universal 4 and 6 cylinder emulator for automobiles with injection systems

Fobos GAS electronics

Gas/petrol switch over relay time

Suitable for carburetor and mono injection type of automobiles. Protective function covering the system in case of an emergency cut off of the engine: The gas valves are automatically switched off up to 4 seconds after an emergency engine cut off to avoid any gas leakage even if the ignition key is turned on.

Smooth adjustment of the time needed for initial gas supply covering a wide range of 0 to 8 seconds which enables the engine to start on gas effortlessly. Anti-noise protection protecting all input and output exits with filtering groups. The harness joins the commutator with a highly reliable connection which helps make the installation easier.

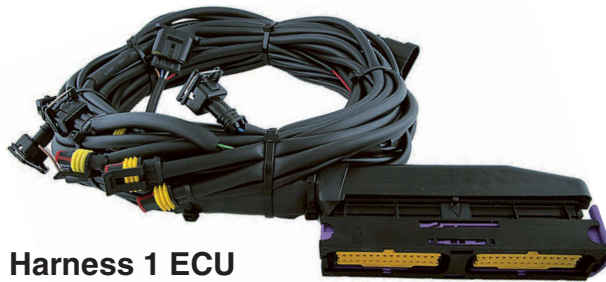
components



Fobos 1 ECU



Fobos 2 ECU



Harness 1 ECU



Harness 2 ECU



Change-over switch

Fobos GAS injection system components

Fobos 1 ECU

FOBOS 1 ECU is designed in a way to work in a busy environment. The body consists of a robust, air-proof aluminum frame.

What distinguishes our system from its competitors is high reliability, due to the use of high-technology components that were designed especially for auto-

motive use.

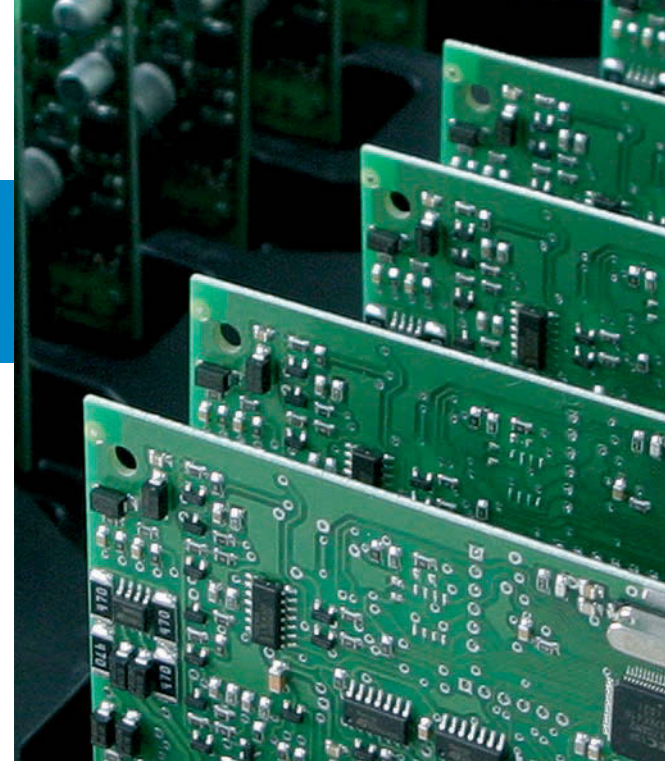
The main signals used in the process of control are: temperature of the cooling flow inside the reducer, temperature and pressure of the gas after the reducer, R.P.M., condition of the petrol injectors, pressure inside the intake manifold, two oxygen sensors, pressure inside the accumulator, gas/petrol switch over and the amount of gas inside the tank.



Fobos 4 ECU



Harness 4 ECU



Fobos 2 ECU



Sensor temperature



Combined sensor

Fobos 2 ECU

Based on Fobos 1, maintaining its complete functionality however only compatible with 3 and 4 cylinder aggregates.

The body consists of a robust, air proof plastic box.

Range of operation from -40°C up to +125°C. Two 24 pin connectors by FCI have been used.

Fobos 4 ECU

Based on Fobos 2, with a much smaller box and only one 24 pin connector of FCI, maintains full functionality and supports 3 and 4 cyl. aggregates.

Harness

The harness of FOBOS gas injection system consists of a bundle of insulated tubing and FCI and AMP connectors. Every single cable is wrapped up in insulated tubing.

Filter

- A dismantling body
- Integrated filter element made of polythene

Combined sensor for gas pressure, M.A.P., gas temperature and DP

A temperature sensor which monitors the temperature of the vaporized gas, and a sensor for the fluxional pressure of the vaporized gas, which monitors the pressure within the system and provides the necessary data to the gas ECU.

systems

FOBOS
GAS EQUIPMENT

Fobos 1

Fobos GAS injection system components

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Fobos GAS injection system components

Fobos 1 ECU Set

- Fobos 1 ECU
- Combined sensor for gas pressure, M.A.P., gas temperature and DP
- Harness
- Change-over switch
- Filter
- Sensor for the reducer's temperature



Fobos 2

Fobos GAS injection system components



Fobos 2 ECU

Based on Fobos 1, maintaining its complete functionality however only compatible with 3 and 4 cylinder aggregates.
The body consists of a robust, air proof plastic box.
Range of operation from -40°C up to +125°C. Two 24 pin connectors by FCI have been used.

Fobos 4

Fobos GAS injection system components



Fobos 4 ECU

Based on Fobos 2, with a much smaller box and only one 24 pin connector of FCI, maintains full functionality and supports 3 and 4 cyl. aggregates.

Fobos 2 ECU Set

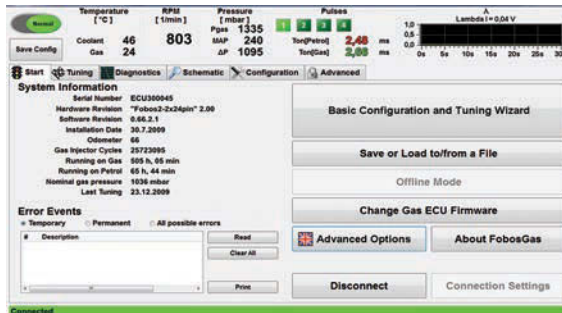
- Fobos 2 ECU
- Combined sensor for gas pressure, M.A.P., gas temperature and DP
- Harness
- Change-over switch
- Filter
- Sensor for the reducer's temperature

Fobos 4 ECU Set

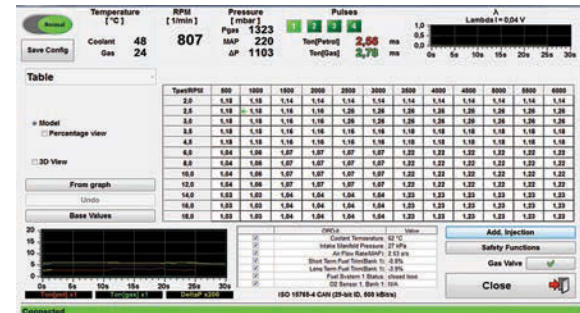
- Fobos 4 ECU
- Combined sensor for gas pressure, M.A.P., gas temperature and DP
- Harness
- Change-over switch
- Filter
- Sensor for the reducer's temperature

software

FOBOS
 GAS EQUIPMENT



The START page provides some basic information about the system installed on the vehicle, diagnostic trouble codes of the supported failures and gives a possibility to load existing well known settings and/or to begin a new configuration session.

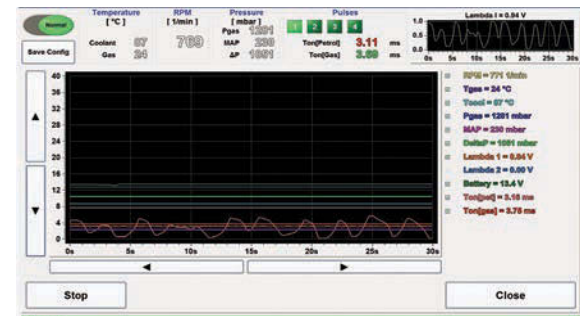


There are several parameters that define how the vehicle to change back to PETROL depending on driving conditions



The FINE TUNING operation is available in two independent modes:

- The major OBD-II parameters can be monitored continuously while the operation is in progress.



Attention is paid to the diagnostic and the self-diagnostic functions of the system which aim to make the use of the software faster and more accessible.



Fobos GAS software

The software for the Fobos Gas injection system is unique with its ability to install and adjust each value of the system according to the preferences of the client and the specifics of the automobile. Thus a more flexible and precise regulation is ensured.

Attention is paid to the self-diagnostic functions of the system and the diagnostics of the vehicle which aim to make the diagnostics of

all the system components fast and accessible.

A system with codes for mistakes is established, similar to that of the petrol ECU.

Possible faults:

1. Low gas pressure
2. Low reducer temperature
3. Very low RPM
4. No signal from the ECU



Control, monitoring and log capabilities.

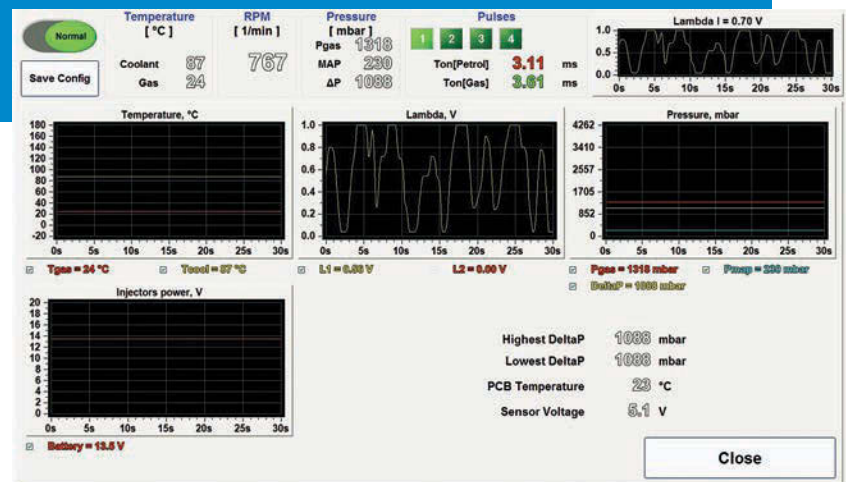


A set of features concerning different injection strategies during on and immediately after CUT-OFF is introduced:

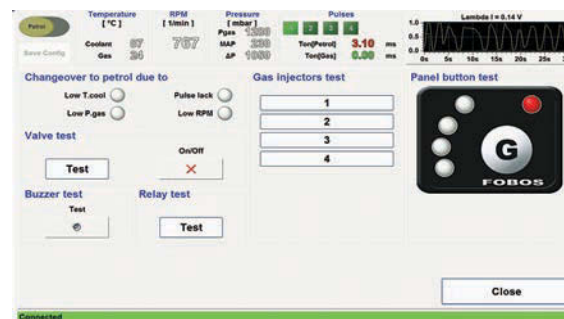
5. Malfunctioning gas pressure sensor
6. Malfunctioning MAP sensor
7. Malfunctioning reducer temperature sensor
8. Malfunctioning gas temperature sensor
9. The automobile starts on gas
10. Malfunctioning button
11. Overheating of a gas injector driver
12. Overheating of the gas ECU
13. Failure of the +5V pressure of the sensors
14. Failure of the pressure of the gas injec-

- tors and valve
15. Malfunctioning sensor of the reducer temperature (short circuit)
16. Gas Valve Trouble
17. Individual Gas Injector Trouble (short circuit)
18. Individual Gas Injector Trouble (open circuit)
19. Switch-over To Gas due to time-out

The software of the system is extremely flexible and enables the driver to regulate



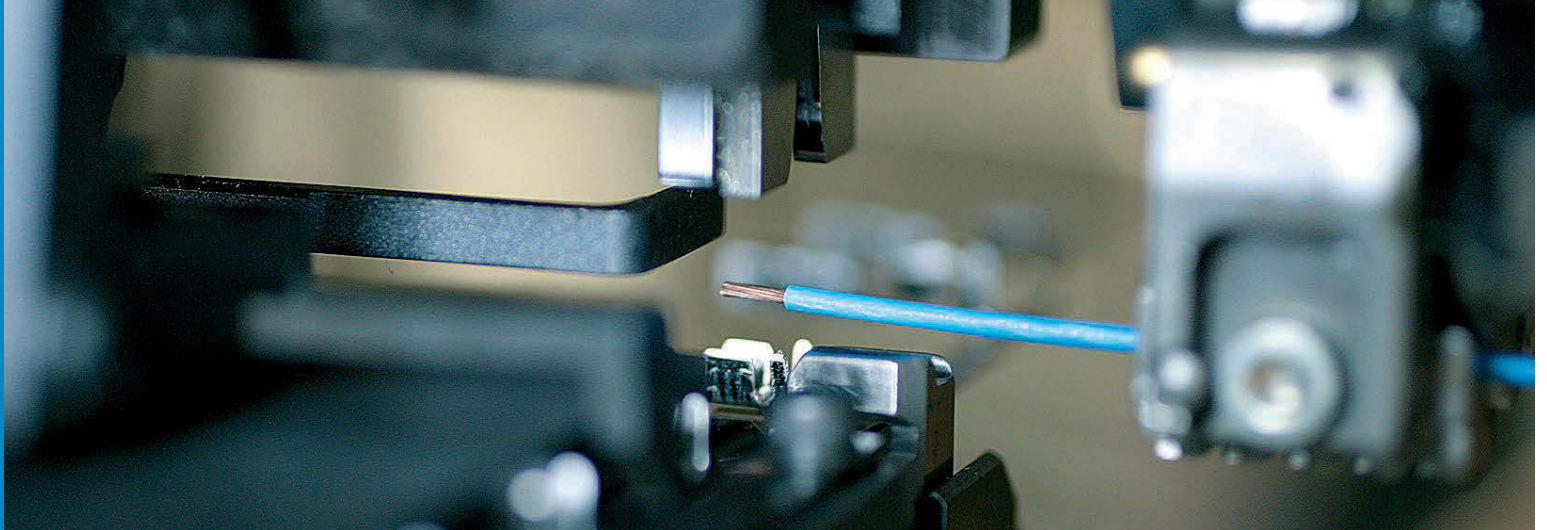
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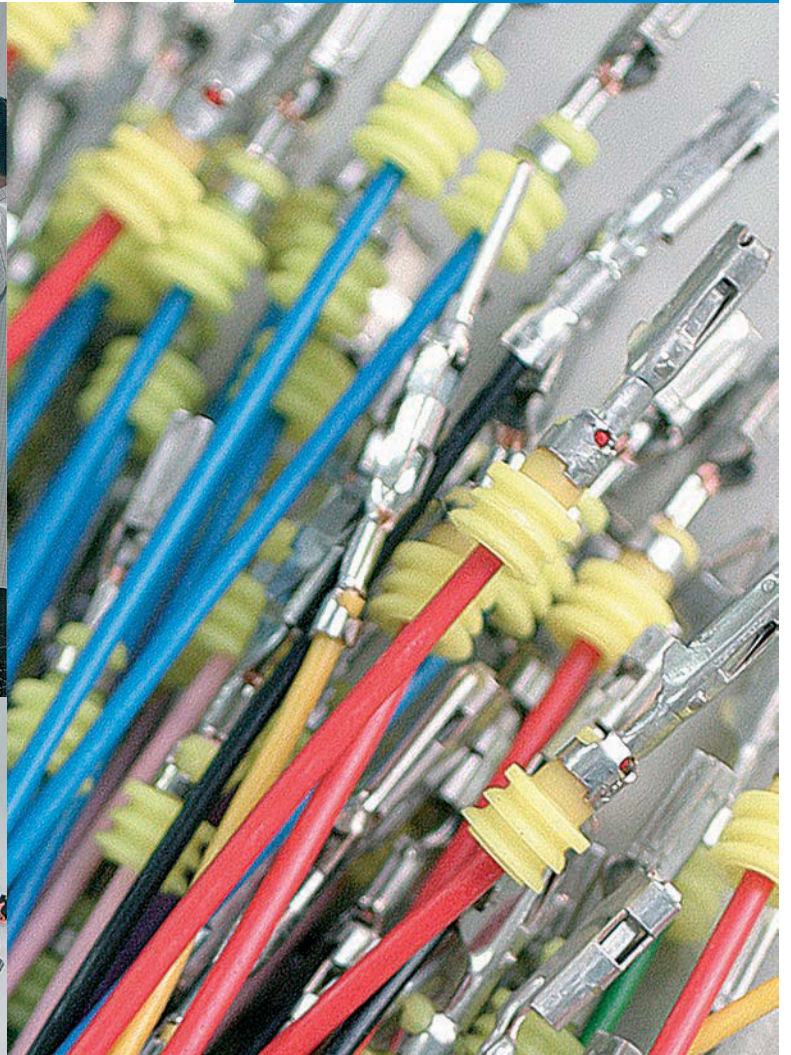
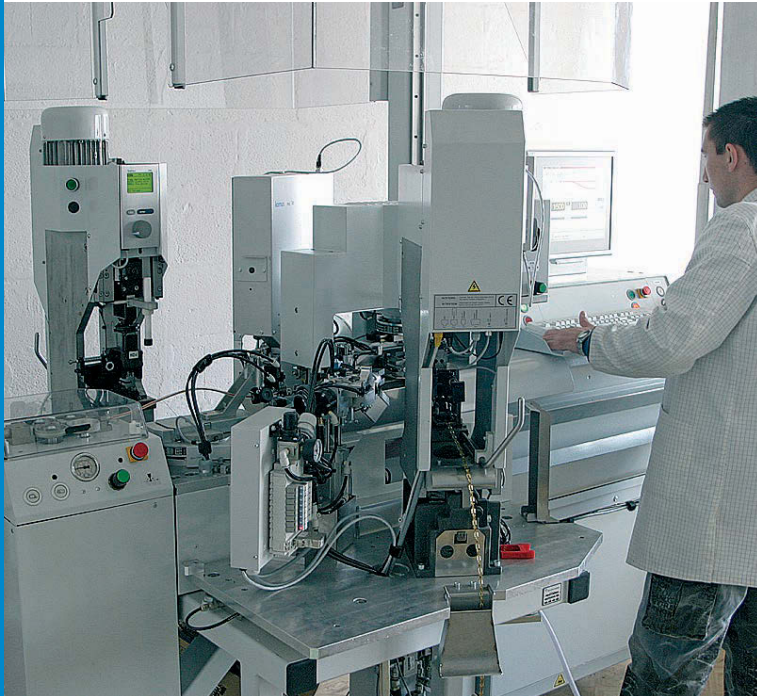
The self-diagnostics plays an important part in detecting faulty components. A few different tests have been developed:

the system according to individual preferences, thus meeting the expectations of even the most exacting clients providing for standards Euro 3 and Euro 4. It has been designed according to the strictest requirements in the field of gas injection systems.

By downloading the appropriate firmware the system can be made to operate independently, not in series. In this way the fuel will be supplied according to the configured settings and engine environment.

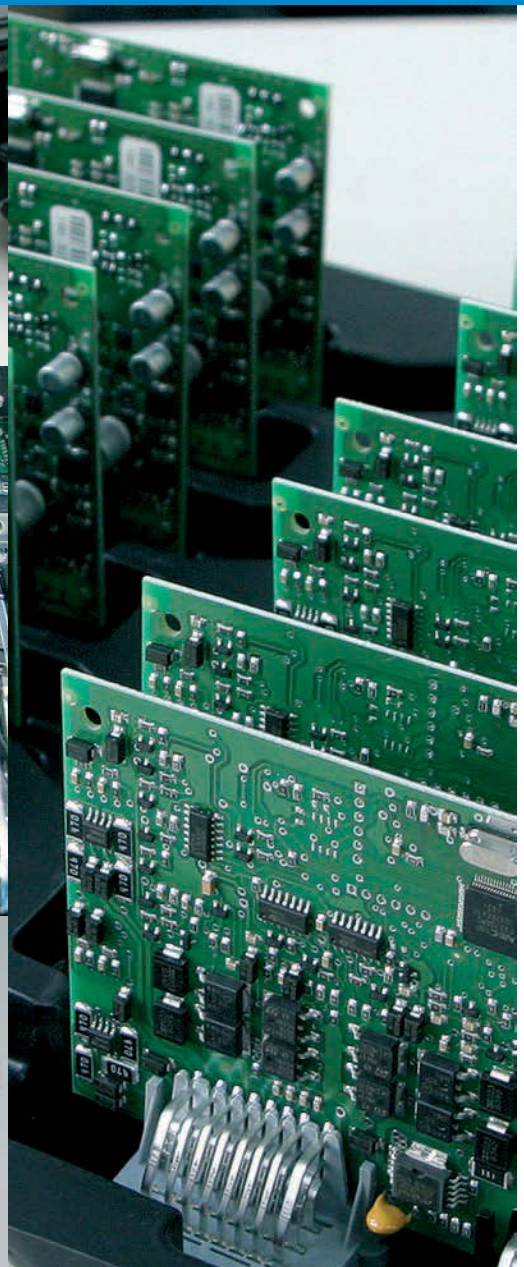
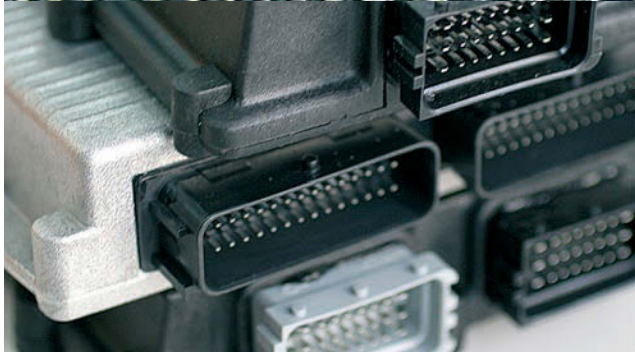
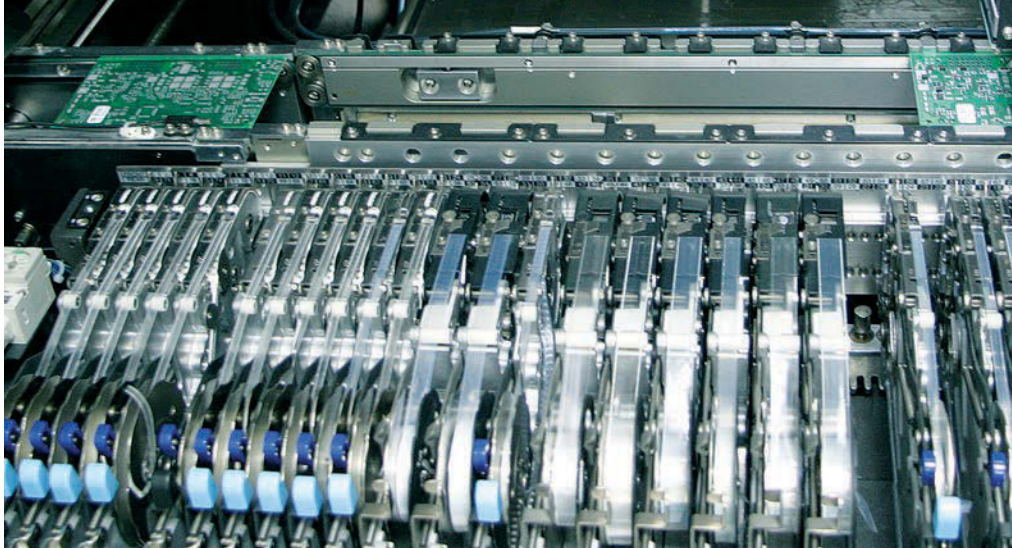


Cabel Confection



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Automotive Electronics



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GAS

equipment